



IMPACT OF COGNITIVE STYLE ON ACADEMIC ACHIEVEMENT OF HIGHER SECONDARY STUDENTS

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ABSTRACT

The main aim of the study is to find out the significance difference in cognitive style and academic achievement of higher secondary students. Survey method was adopted for this study. The sample consists of 300 higher secondary students in and around Karur district. Sample Random Sampling Technique was used. Cognitive style tool was used to collect the data. For the purpose of analysis 't' test was used. The findings of the study were: 1) There is no significant difference between male and female higher secondary students in their cognitive style. 2) There is significant difference between male and female higher secondary students in their academic achievement. 3) There is significant relationship between cognitive style and academic achievement of higher secondary students.

KEYWORDS: Cognitive style, Academic achievement and Higher Secondary Students.

INTRODUCTION:

Individuals differ from one another in their ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, to overcome obstacles by materializing the thought. A given person's intellectual performance will vary on different occasions, in different domains, as judged by different criteria. Concepts of intelligence are attempts to clarify and organize this complex set of phenomena. During the latter half of the 20th century considerable research had been carried out on the construct of intelligence. In particular there has been much examination of specific abilities that extend beyond the concept of general undifferentiated intelligence. In 1960s a good number of cognitive theorists studied neuropsychology, neuroscience and higher mental processes described as the cognitive revolution. Cognitive psychology encompasses the higher mental processes including the way people know and understand the world, process information, make decisions, judgment and describe their knowledge and understanding to others.

Cognitive Style:

Cognition is a general term used to describe various aspects of higher mental processes like thinking, reasoning, decision making, memory and problem solving (Robert A. and Baron 2000). The information coming from the senses is transformed, reduced or elaborated, recovered and used in the cognition process. This process includes how people perceive, learn, remember and think about information. A style is a preferred way of using the abilities one has. It refers to how some one likes to do something. The term may be used to describe a set of individual qualities, activities or behaviour sustained over a period of study.

Cognitive style refers to information processing habits such as perceiving, thinking, remembering and problem solving (Goldstein and Black Man. 1978). Cognitive style is a hypothetical construct that has been developed to explain the process of perceiving, remembering, judging, appraising and problem solving. More or less it includes one's intellectual activities. It is innate and affects a wide range of individual functioning. In education, cognitive style refers to how the students acquire knowledge (cognition) how they process information (conceptualization) and how it is applied in problem solving.

Statement of the Problem:

The present investigation is to describe "Impact of Cognitive Style on Academic Achievement of Higher Secondary Students".

Operational Definition of the Key Terms:

Cognitive style: Cognitive style refers to the mental process which includes how people perceive, learn, remember and think about information (Robert J. Sternberg 2006). By the term cognitive style, the investigator refers to the way in which students acquire knowledge, how they process information i.e. think and solve problems. The investigator deals with two important cognitive styles namely, systematic style and intuitive style.

- i) **Systematic style:** By the term systematic style, the investigator refers to the students' step-by-step or sequential approach to thinking, learning, decision-making and problem solving.
- ii) **Intuitive style:** By the term intuitive style, the investigator refers to the students' instantaneous, spontaneous decision making and problem solving according to their heuristics based experiences.

Academic achievements:

"Achievement is proficiency of performance in a given skill or body of knowledge" (Dictionary of Education, 1954).

Higher Secondary Students:

By higher secondary students the Investigator means the students doing standards XI and XII in higher secondary schools is Tamil Nadu state.

Objectives:

1. To find out the level of cognitive style and its dimensions of higher secondary students
2. To find out the significant difference between cognitive style and its dimensions of higher secondary students in terms of gender
3. To find out the significant difference between cognitive style and its dimensions of higher secondary students in terms of locality
4. To find out the level of academic achievement of higher secondary students
5. To find out the significant difference between academic achievement of higher secondary students in terms of gender
6. To find out the significant difference between academic achievement of higher secondary students in terms of locality
7. To find out the significant relationship between cognitive style and academic achievement of higher secondary students

Hypotheses of the Study:

1. There is no significant difference between male and female higher secondary students in their cognitive style and its dimensions
2. There is no significant difference between rural and urban higher secondary students in their cognitive style and its dimensions
3. There is no significant difference between male and female higher secondary students in their academic achievement
4. There is no significant difference between rural and urban higher secondary students in their academic achievement
5. There is no significant relationship between cognitive style and academic achievement of higher secondary students

METHODOLOGY:

The investigator has used survey method for the present investigation.

Population and Sample:

According to John W. Best and James V. Kahan (1992) "A population is any group of individuals that have one or more characteristics in common that are interest to the researcher. The population may be all the individuals of a particular type, or a more restricted part of that group" (p.11)

The population of this study consists of 300 higher secondary school students in around Karur district in Tamilnadu.

Tools Used:

By keeping the various objectives of the present study, the investigator has necessitated the development of the following tools for the data collection.

1. Cognitive Style Inventory (CSI): Developed and validated by Praveen Kumar Jha (2001).
2. Academic Achievement Tool: the separate tool was prepared by the investigator to measure the achievement in Tamil language

Statistical Techniques Used:

The investigator has used Percentage analysis, mean, SD, t-test, Pearson Product Moment Correlation,

Data Analysis:

Table 1: Level of cognitive style of higher secondary students

| Dimension | Total Sample | Low | | Moderate | | High | |
|------------------|--------------|-----|------|----------|------|------|------|
| | | No. | % | No. | % | No. | % |
| Systematic style | 300 | 53 | 29.4 | 199 | 41.7 | 48 | 28.9 |
| Intuitive style | | 46 | 13.4 | 209 | 60.4 | 45 | 26.2 |
| Cognitive style | | 64 | 21.6 | 196 | 65.9 | 40 | 12.5 |

21.6%, 65.9%, 12.5% of higher secondary students have low, moderate and high level Cognitive style respectively.

Table 2 : Difference between male and female higher secondary students in their cognitive style

| Dimension | Male (N=166) | | Female (N=134) | | Calculated "t" value | Remarks |
|------------------|--------------|-------|----------------|-------|----------------------|---------|
| | Mean | S.D | Mean | S.D | | |
| Systematic style | 12.27 | 1.395 | 12.29 | 1.400 | 0.174 | NS |
| Intuitive style | 12.24 | 1.397 | 12.27 | 1.381 | 0.378 | NS |
| Cognitive style | 132.31 | 3.110 | 132.26 | 3.099 | 0.284 | NS |

Table Value for df 298 is 1.96 at level of significance

It is inferred from the above table that there is no significant difference between male and female higher secondary students in their Systematic style, Intuitive style and Cognitive style.

Table 3: Difference between rural and urban higher students in their cognitive style

| Dimension | Male (N=162) | | Female (N=138) | | Calculated "t" value | Remarks |
|------------------|--------------|-------|----------------|-------|----------------------|---------|
| | Mean | S.D | Mean | S.D | | |
| Systematic style | 18.33 | 1.424 | 18.31 | 1.461 | 0.203 | NS |
| Intuitive style | 16.56 | 1.188 | 16.55 | 1.198 | 0.146 | NS |
| Cognitive style | 132.27 | 3.126 | 132.29 | 3.071 | 0.111 | NS |

Table Value for df 298 is 1.96 at level of significance

It is inferred from the above table that there is no significant difference between rural and urban higher secondary students in their Systematic style, Intuitive style and Cognitive style.

Table 4: The level of male and female students in their academic achievement

| Academic Achievement | Low | | Average | | High | |
|----------------------|-----|-------|---------|-------|------|-------|
| | N | % | N | % | N | % |
| Total | 42 | 21.60 | 218 | 62.40 | 40 | 16.00 |

It is inferred from table that 21.60% of them have low, 62.40% of them have average and 16.00% of them have high level of achievement.

Table 5: Difference between male and female students in their achievement

| Category | Count N | Mean | SD | Calculated Value 't' | Remarks |
|----------|---------|-------|-------|----------------------|-------------|
| Male | 166 | 60.15 | 14.82 | 2.46 | Significant |
| Female | 134 | 55.18 | 12.05 | | |

(At 5% level of significance, the table value 't' is 1.96)

Since the calculated value of 't' is greater than the table value for 298 degrees of freedom of 5% level, the hypothesis is rejected. Therefore there is significant difference between male and female students in their achievement in Tamil language.

Table 6: Difference between rural and urban students in their achievement

| Category | Count N | Mean | SD | Calculated Value 't' | Remarks |
|----------|---------|-------|-------|----------------------|-------------|
| Rural | 162 | 56.86 | 11.32 | 2.37 | Significant |
| Urban | 138 | 61.15 | 13.53 | | |

(At 5% level of significance, the table value 't' is 1.96)

Since the calculated value of 't' is greater than the table value for 298 degrees of freedom of 5% level, the hypothesis is rejected. Therefore there is significant difference between rural and urban students in their achievement in Tamil language.

Table 7: Correlation value between cognitive style and academic higher secondary school students

| Category | Σx | Σy | Σx^2 | Σy^2 | Σxy | Calculated Value 't' | Remarks |
|----------|------------|------------|--------------|--------------|-------------|----------------------|-------------|
| Male | 4161 | 28681 | 258935 | 11132953 | 1628868 | 0.553 | significant |
| Female | 6203 | 46350 | 362439 | 17706074 | 2380849 | 0.480 | significant |

(For 298 df, at 5% level of significance, the table value is 0.138)

It is inferred from the above table that there is significant relationship between cognitive style and Academic achievement of higher Secondary Students in their Tamil language.

FINDINGS:

1. 21.6%, 65.9%, 12.5% of higher secondary students have low, moderate and high level multiple intelligence respectively.
2. 21.60% of them have low, 62.40% of them have average and 16.00% of them have high level of academic achievement.
3. There is no significant difference between male and female higher secondary students in their cognitive style and its dimensions
4. There is no significant difference between rural and urban higher secondary students in their cognitive style and its dimensions
5. There is significant difference between male and female higher secondary students in their academic achievement
6. There is significant difference between rural and urban higher secondary students in their academic achievement
7. There is significant relationship between Cognitive style and Academic achievement of higher Secondary schools Students.

DISCUSSION ON THE RESULT:

There is significant difference between male and female students in their academic achievement. The fact that female were better than male may be due to their hardworking nature towards achievement without any distraction.

There is significant difference between rural and urban high school students in their achievement. The result that urban students have high achievement may be due to the fact that urban students have complete infrastructural facilities for their studies. Even in their home too, the parents are ready to offer separate study room with necessary facilities like study table with chair, lightings, reference books etc.

The study reveals that there is a significant positive correlation between cognitive style and academic achievement among higher secondary students. cognitive style highly influences or impact the achievement level of higher secondary students.

All the final analysis, the investigator has come out with a conclusion that Cognitive style has significant impact on the Academic Achievement of Higher Secondary Students.

CONCLUSION:

Schools are the organs of the life of the Nation. They are ultimately responsible for the development of well integrated, all round, wholesome personalities. In today's materialistic and highly competitive world, man seems to be losing their identity and direction. Fast growing technological changes have put a lot of pressure on them that blinds their vision for other alternatives of growth and survival

They have to develop moral as well as national character. The role of students in fostering Cognitive style should in no way be underestimated. They have a magnificent role to play by making use of all opportunities in and out of the school to develop the Cognitive style. Unless the students make conscious efforts in this direction, it will prove to be unserviceable. The students themselves should first try to develop their knowledge, values and academic abilities.

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